

REMARKS

Claims 1 - 20 were pending in the present application for patent as of the Office Action of November 2, 2004. In the Office Action of November 2, 2004, the Examiner rejected claims 1 - 4, 6 - 9, and 18 - 20 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,797,312, Kong et al., rejected claims 1 - 3 and 7 - 9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Number 5,755,859, Brusic et al., rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Brusic et al. in view of U.S. Patent Number 6,551,856, Lee, and rejected claims 10 - 17 under 35 U.S.C. 103(a) as being unpatentable over Kong et al. as applied to claim 1 and further in view of U.S. Patent Number 6,645,567, Chebiam et al.

The claims were not amended, however they are included for the convenience of the Examiner,

Claims 1 - 4, 6 - 9, and 18 - 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kong et al. The examiner stated that Kong et al. shows everything in claims 1 - 4, 6 - 9, and 18 - 20 except for the second chelating agent of claim 1, but that it would have been obvious to include a second chelating agent because Kong et al. teaches ammonium salts and that ammonium salts also have a chelating function. The applicants believe that Kong et al. does not show or suggest the present invention as claimed in claim 1. The statement in Kong et al. at column 6, lines 30 - 41 discusses complexing, or chelating, agents in general, and does not show or suggest the use of two chelating agents together, where each chelating agent has a different stability constant. It would not have been obvious to include a second chelating agent in Kong et al. to arrive at the present invention, as claimed in claim 1, because the chelating agents of claim 1 are not just any chelating agents. The first and second chelating agents of claim 1, have different stability constants and function to keep at least one of nickel and cobalt suspended in solution. The reasons for using two chelating agents with two different stability constants are discussed at, for example, page 4, paragraphs 0016 and 0017 of the present application.

Also, the present invention, as claimed in claim 1, includes first and second pH adjusters where the first and second pH adjusters have different compositions with different pH factors and function as buffering agents. Kong et al. discusses including a pH adjusting agent and a buffer (column 6, lines 1 - 7 and 42 - 54). Kong et al. does not show or suggest the

present invention, as claimed in claim 1, where the first and second pH adjustors themselves function as buffering agents, thus eliminating the need for a separate buffering agent.

In addition, Kong et al. discloses optionally including using an organic sulfur compound as a stabilizer (column 6, line 66 to column 7, line 2). However, Kong et al. does not show or suggest adding at least one surfactant that chemically stabilizes the solution in addition to enhancing uniformity as claimed in claim 1.

Therefore, for the above reasons, the applicants believe that claim 1 is allowable over Kong et al.

Regarding the rejection of claims 2 - 4 and 6 - 9, the applicants believe that the above comments regarding the rejection of claim 1 apply, and that claims 2 - 4 and 6 - 9 are allowable over Kong et al.

Regarding the rejection of claims 18 - 20, the applicants believe that claims 18 - 20 are allowable over Kong et al. For example, Kong et al. does not show or suggest a first chelating agent for preferentially chelating the metal, and a second chelating agent that chelates any other metal in the composition. Kong et al. just says, at column 6, lines 54 and 55, that "ammonium salts not only act as buffers, but also have some complexing function". Kong et al. does not teach the second chelating agent that chelates any other metal in the composition. Therefore, Kong et al. does not disclose two chelating agents as claimed in claims 18 - 20.

Also, Kong et al. does not disclose a first pH adjuster that both adjusts the pH of the composition and buffers the composition. In Kong et al., as discussed above, a separate buffer is provided for buffering the composition.

Therefore, the applicants believe that claims 18 - 20 are allowable over Kong et al.

Claims 1 - 3 and 7 - 9 were rejected under 35 U.S.C. 102(b) as being anticipated by Brusic et al. Brusic et al. discloses an activation process for the deposition of a cobalt-tin alloy on a metal substrate pad. Brusic et al. does not show or suggest a semiconductor process as claimed in claim 1. For example, claim 1 claims two chelating agents. Brusic et al. does not disclose two chelating agents. Brusic et al. only discloses using a single chelating agent at column 4, lines 2 - 6. Also, Brusic et al. does not disclose using two pH adjustors as claimed in claim 1. Brusic et al. discloses using one pH adjustor and buffers at column 4, lines 6 - 9. In addition, Brusic et al. does not disclose adding a diffusing barrier material to the solution. Brusic et al. discloses a barrier layer 40 in FIG. 4A where the copper wire structure 42 is

deposited on the barrier 40. Therefore, Brusic et al. does not show or suggest a semiconductor process as claimed in claim 1, and the applicants believe that claim 1 is allowable over Brusic et al.

The applicants believe that the comments above regarding the section 103 based rejection of claim 1 also applies to the rejection of claims 2, 3, and 7 - 9, and that claims 2, 3, and 7 - 9 are allowable over Brusic et al.

Claim 5 was rejected under 35 U.S.C. 103(a) as being unpatentable over Brusic et al. in view of Lee. The examiner used to Lee show planarizing copper pads. The applicants believe that claim 5 is allowable for at least the reasons given above for the rejection of claim 1.

Claims 10 - 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kong et al. as applied to claim 1 and further in view of Chebiam et al. The examiner used Chebiam et al. to show the use of TMAH as a buffering agent. The applicants believe that claims 10 - 17 are allowable over Kong et al. in view of Chebiam et al. for at least the reasons given above regarding the rejection of claim 1.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless the applicants have argued herein that such amendment was made to distinguish over a particular reference or combination of references.


Believing to have responded to each and every rejection contained in the Office Action mailed November 2, 2004, the applicants respectfully request the reconsideration and allowance of claims 1 - 20; thereby placing the application in condition for allowance.

Respectfully submitted,

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